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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/827,531 | 04/06/2001 | Stephen A. Smith | 005326.P003 | 6381 |
| 22852 | 7590 | 04/27/2005 | EXAMINER | |
| FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413 | | | CHOI, PETER H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3623 | |

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/827,531 | | SMITH ET AL. | |
| | Examiner | | Art Unit | |
| | Peter Choi | | 3623 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/11/01</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 1-18 are pending in the application.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- In Figure 2:
 - Reference character 225 (assumed to be a “network communication”).
 - Reference character 227 (assumed to represent a network connection between the client computer and data center server).
 - Reference character 245 (assumed to be the step of submitting data).
- In Figure 4:
 - Reference character 570 (assumed to be the in-stock results)
- In Figure 7:
 - Reference character 710 (assumed to be the “Shop time”).

- Reference character 738 (assumed to be the variance for reported sales).
- Reference character 739 (assumed to be the variance for unreported sales).
- Reference character 748 (assumed to be the probability distribution of reported sales).
- Reference character 749 (assumed to be the probability distribution of unreported sales).
- Reference character 770 (assumed to be the "quantity" parameter).

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- Quantity parameter 479, as mentioned on page 22 of the specification, is not displayed in Figure 4.
- Updated sales rate, as mentioned in the specification is displayed in Figure 5, but does not have an assigned reference character.
- Digital Processing System 600, as mentioned on page 36 of the specification, is not assigned a reference character in Figure 6.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because:

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- In Figure 5:
 - Reference characters "590" and "529" have both been used to designate customer interface.
 - Reference characters "526" and "546" have both been used to designate in-stock probability.
 - Reference character "590" has been used to designate both a customer interface and a customer.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: Line 13 (of Claim 11) claims a means for obtaining a probability of an availability of the item. However, the claim language does not specify the occasion for which the probability is computed. In light of earlier claims (claim 1), the examiner has interpreted the portion of the claim in question to read "to obtain a probability of an availability of the item" is at an expected time of transaction. This step is deemed to be critical or essential to the practice of the invention, but not included in the claim(s). See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Claims 1,3, 11, 13, 14, and 16 are rejected under 35 U.S.C. 112, second, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In independent claims 1, 11 and 14, it is claimed that a variance is calculated for the reported and unreported sales rate of items. However, the reported and unreported sales rate are not determined until dependent claims 3, 13, and 16. The sales rate is needed before the variance may be calculated (as per page 20 of the specification). This raises an issue of enablement, since the sales rate must first be determined before calculating a variance. The current wording of the claims also raises

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an issue of antecedent basis, as a variance cannot be calculated for a sales rate that has yet to be determined.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: Line 13 (of Claim 11) claims a means for obtaining a probability of an availability of the item. However, the claim language does not specify the occasion for which the probability is computed. In light of earlier claims (claim 1), the examiner has interpreted the portion of the claim in question to read "to obtain a probability of an availability of the item" is at an expected time of transaction. This step is deemed to be critical or essential to the practice of the invention, but not included in the claim(s). See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Claims 1,3, 11, 13, 14, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the order in which the sales rate and variance of said sales rate are determined. In independent claims 1, 11 and 14, it is claimed that a variance is calculated for the reported and unreported sales rate of items. However, the reported and unreported sales rate are not determined until dependent claims 3, 13, and 16. The sales rate is needed before the variance may be calculated (as per page 20 of the

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specification). The current wording of the claims also raises an issue of antecedent basis, as a variance cannot be calculated for a sales rate that has yet to be determined.

Claim Rejections – 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible results.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the “progress of science and the useful arts” (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory

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subject matter. For a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

The usefulness of the invention (as presented by claims 1-18) is inadequately specified. The invention recites the steps of calculating a probability of item availability but nothing in the claims further advances the use of said probability. Despite the contents of the specification, as currently written, the claims do not represent a useful result. In short, the claims basically recite steps for performing calculations on a set of data.

Claims 1, 11, and 14 involve the step of performing a convolution of probability distributions to obtain a probability of item availability. The applicant has also failed to disclose why convolution was chosen over other known means (such as weighted averages). There are also no steps to ensure the accuracy, reliability or validity of the data used. Also, there is no mentioning as to why a convolution of probabilities is needed to make the probability of item availability more accurate.

Thus, the claimed invention, as a whole, fails the usefulness test of the two-prong test, and claims 1-13 are deemed to be directed to non-statutory subject matter.

Claims 14-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 14-18 only recite an abstract idea. The

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recited method of calculating a variance and generating a probability distribution of reported and unreported sales to perform a convolution to obtain a probability of item availability does not apply, involve, or use the technological arts since all of the recited steps can be performed by use of a pencil and paper. The claimed invention, as a whole, is not within the technological art as explained above, and claims 14-18 are deemed to be directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (PG Pub US2003/0074349).

As per claim 1, Gupta teaches a machine readable medium having stored thereon instructions, which when executed by a processor, cause the processor to perform the following:

calculating a variance on data on reported sales (**product order data**)

[Paragraph 26].

Gupta does not teach the step of calculating a variance for unreported sales. However, given that merchandise exits a store's inventory by a plurality of reasons other than sales (theft, clerical error, spoilage, damaged goods, shrinkage, etc.) other sources of inventory depletion need to be accounted for. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to include unreported sales in accounting for sales for the reasons discussed above therein.

Gupta does not teach the generation or convolution of probability distributions modeling (reported and unreported) product sales. However, it is old and well known in the art that discrete events (such as product sales) can be represented by a probability distribution. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to generate probability distributions to predict future behavior for use of forecasting future inventory levels (and subsequent need to replenish inventory).

Gupta also does not teach the step of performing a convolution of probability distributions. However, the step of convolution is old and well known in the art, as was disclosed by the applicant. Therefore, it would have been obvious to one of ordinary skill in the art to perform a convolution of probability distributions of sales to determine the probability of an item being available in light of the combined probability of an item being sold (either reported or unreported).

Claims 11 and 14 are also rejected by the same rationale.

As per claims 2, 12, and 15, Gupta fails to teach the step of performing a convolution of probability distributions. However, as stated above, the steps of generating and convolving probability distributions are old and well known in the art. Combining the convolution values of the rate of reported and unreported sales is a logical step, as both reported and unreported sales are necessary to reflect inventory depletions. The combined convolution values of reported and unreported sales would provide an overall representation of the rate of inventory depletion for an item. As in claims 1, 11, and 14, the convolution of the probability distributions are used to obtain the probability of item availability at the time of transaction, which is at the end of the delay time. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to include the step of summing the convolution values of reported and unreported sales for the reasons discussed above therein.

As per claim 3, 13, and 16, Gupta fails to teach the step of determining the reported sales rate and unreported sales rate. However, it is common knowledge that, given sales data, the reported sales rate can be calculated by dividing the number of items sold by the length of time during which the time was sold. It is old and well known in the art that companies monitor and update inventory levels to verify sales data and in

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determining the need and quantity of merchandise replenishment. During this step of inventory maintenance, it is highly likely that "unreported sales" (theft, damaged and spoiled goods, etc.) would be revealed and a rate can be calculated in a way similar to reported sales. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to include the step of determining reported and unreported sales rate to obtain an overall understanding of the overall rate at which inventory levels are depleted, so that inventory levels can be replenished, sales forecasts can be prepared, and so that steps can be taken to improve reported sales and decrease the number of unreported sales.

As per claims 4, 7 and 10, Gupta fails to teach that sales are represented by a negative binomial probability distribution. However, it is old and well known in the art that retail sales data is best modeled as a negative binomial probability distribution. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to include the step of modeling sales as a negative binomial distribution to forecast sales, which will lead to more reliable levels of customer service, and lower (maintenance, inventory, and holding) costs.

As per claim 5, Gupta fails to teach the step of recursively calculating the binomial distribution for reported sales. However, it is common knowledge that the sales rate of many items fluctuates over time, making it necessary to continually modify the binomial distribution used for predictive modeling. It would have been obvious to one of

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ordinary skill in the art at the time of invention to modify the teachings of Gupta to include recursive calculation to create a probability distribution that is more reliable, since it is based on an updated (and more accurate) sales rate.

As per claim 6, Gupta fails to teach the step of calculating a variance based on an experience level parameter that reflects the number of time units of observation for the sales of a particular product. As stated above, it is common knowledge that the sales rate of items fluctuates over time, inherently changing the sales rate of said items. As the number of sales fluctuates over equal time units of observation (the number of time units in an observation are also prone to change), it is inherent that this would affect the sales rate (and its variance, since variance is simply a descriptive statistic of a series of data). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Gupta to calculate sales rate variance on experience level, for the reasons discussed above therein.

As per claims 8 and 17, Gupta fails to teach that the sales rate is the rate of sales for a plurality of time units averaged over the plurality of time units. However, Official Notice is taken that it is common knowledge that this is the definition of a sales rate (the number of sales averaged over a period of time units).

As per claims 9 and 18, Gupta fails to teach the step of adjusting the sales rate to reflect a rate of sale for a particular time period. However, Official Notice is taken that a

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sales rate can be determined for a compendium of time periods, which include: yearly, monthly, weekly, daily, hourly basis, or during specific periods of time (during the mornings, between 1 and 5 PM, on Fridays, etc).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bailey et al. (U.S Patent #6,785,671) teaches a system and method for locating web-based product offerings. A query server is accessed by a search engine system to produce a likelihood (probability) score of offering a particular product online. Bailey et al. teaches a likelihood score of offering a product online, not the availability of a product in a brick and mortar store. Bailey et al. also does not incorporate probability distributions (calculate, determination, generation, or convolution of), sales data (rate of reported and unreported sales), "experience level" or "shop" or "delay" times as defined by the applicant.

PR Newswire published a press release by CompUSA on December 21, 1999. In the press release, CompUSA announced the addition of a new feature to its website. A "Pricing and Availability" feature will allow customs to enter a zip code to check on national product pricing and the availability of a specific product at the five closest CompUSA Computer Superstores.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PC

April 18, 2005


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